



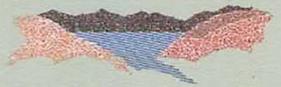
STORM DRAINS CARRY UNTREATED WATER

KEEP 'EM
Clean



Stormwater Quality
Management Committee

TO LAKE MEAD



Las Vegas Valley Municipal Stormwater Permit Program Timeline



LIST OF ABBREVIATIONS

EPA - Environmental Protection Agency
 MS4 - Municipal Separate Storm Sewer System
 NDEP - Nevada Division of Environmental Protection
 NPDES - National Pollutant Discharge Elimination System
 CCRFCD - Clark County Regional Flood Control District
 NDOT - Nevada Department of Transportation
 SQMC - Las Vegas Valley Stormwater Quality Management Committee

REFERENCES

EPA, Overview of the Storm Water Program, June 1996 Available at: <http://www.epa.gov/waters/pubs/owm0195.pdf>
 EPA, Phases of the NPDES Stormwater Program Available at: <http://pub.epa.gov/waters/stormwater/swphases.cfm>
 Stormwater Quality Management Committee Available at: <http://www.vstormwater.com>





Statement of the Issue

**The Las Vegas Valley MS4 Program has been in place since 1991.
The task is now to make revisions to the program based on the 2005 EPA Audit.**

THE BACKGROUND

- We have had a stormwater quality (MS4) permit since 1991
- We have developed many programs and conducted many activities under our MS4 program for the past 16 years
- We have always coordinated closely with the state agency that oversees our program (NDEP)

THE PROBLEM

- EPA audited our program in 2005 and determined that there were significant deficiencies in the current program
- EPA and the State identified several specific improvements required in four program categories
- We have until June 2008 to implement these program improvements

THE SOLUTION

- The municipal Permittees have studied possible program improvements to meet EPA and State requirements
- Stakeholder involvement is needed to develop feasible programs with community support





EPA Audit Findings

A 2005 EPA audit of the Las Vegas Valley NPDES MS4 program identified many positive program attributes, but found significant deficiencies in four program components.



- Inadequate construction site inspection and enforcement program
- Lack of erosion and sediment control regulations



- Lack of ordinances to minimize water quality effects of new development
- No requirement for permanent BMPs for new development and redevelopment



- No list of industrial sites that could contribute significant pollution
- Inadequate plan for sediment removal from regional detention basins

The deficiencies in the Industrial and Maintenance programs are being resolved by members of the Stormwater Quality Management Committee (SQMC)





New Working Groups Formed by the SQMC to Address Key Issues

Development Guidelines Working Group

DGWG

Mission: To analyze alternatives for a program to reduce the impact of new development and significant redevelopment on runoff quality

Issues to be Resolved:

- Post-construction planning measures (e.g., Low Impact Development)
- Structural and non-structural runoff controls
- Long-term BMP maintenance
- New / revised ordinances, regulations and policies
- Impacts of changed policies on community services, developers and land values
- Planning at regional vs. local level

Construction Program Working Group

CPWG

Mission: To analyze alternatives for a program to reduce the impact of construction activities on runoff quality

Issues to be Resolved:

- An ordinance or regulatory mechanism to require erosion and sediment controls
- Requirements for construction site operators to implement appropriate erosion and sediment control BMPs
- Requirements for construction site operators to control waste
 - Procedures for site plan review
 - Procedures for receipt and consideration of information submitted by the public
 - Procedures for site inspection and enforcement of control measures

Detention Basin Working Group

DBWG

Mission: To determine the feasibility of retrofitting existing detention basins to address water quality.

Issues to be Resolved:

- Determine the feasibility of retrofitting an existing detention basin as a pilot program
- If feasible, develop retrofit designs and costs
- Implement retrofit and conduct runoff monitoring for water quality performance
- Determine whether additional basin retrofits are warranted

Stormwater Stakeholders Working Group

SSWG

Mission: To use a consensus-based process to develop program recommendations that meet the permit requirements and are acceptable to the community



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SSWG GOAL

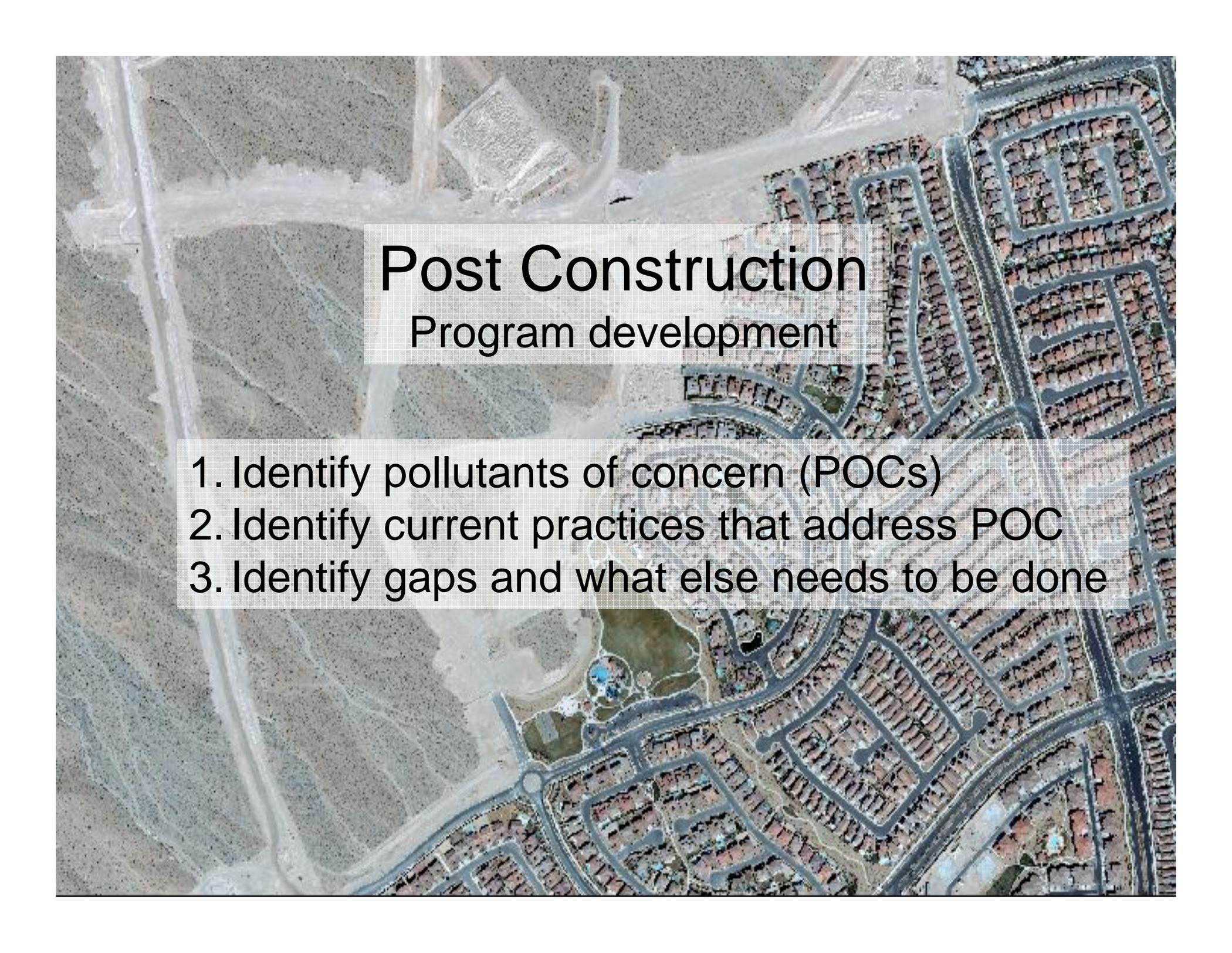
Comply with the MS4 permit by developing construction and post construction program enhancements that are:

- Clear, simple and effective
- Consistent
- Cost effective
- Consensus based
- Fiscally and environmentally responsible
- Sensible for the Las Vegas Valley

Construction Site Programs



1. Ordinances requiring BMPs for erosion control and site waste/materials management
2. Inspection and enforcement processes within each jurisdiction to replace DAQEM inspection process
3. BMP guidance manual detailing what works in our area and what is expected of the site operator
4. Proof of State general permit coverage prior to issuance of grading/building permit.
5. Inspector and permittee training



Post Construction Program development

1. Identify pollutants of concern (POCs)
2. Identify current practices that address POC
3. Identify gaps and what else needs to be done

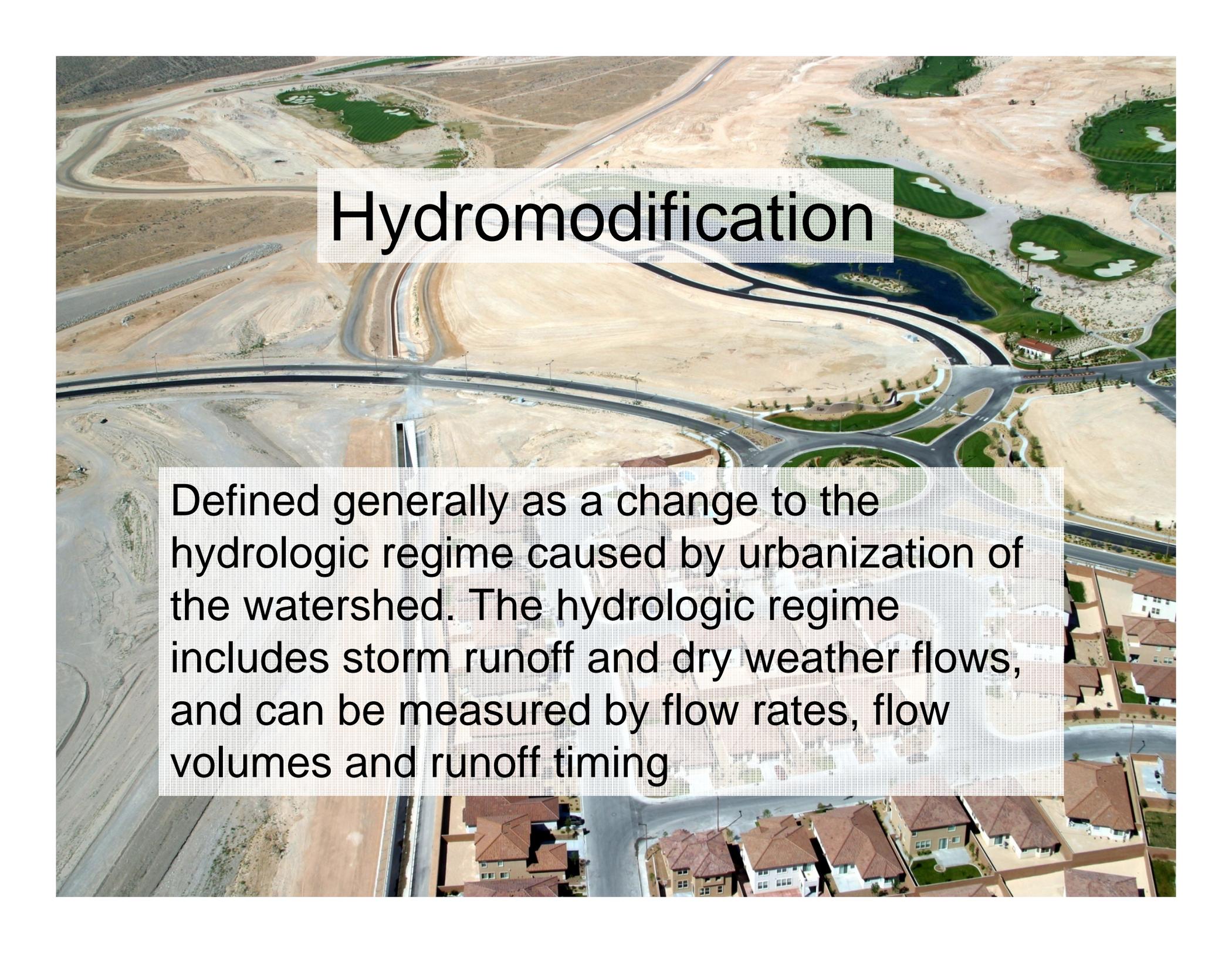
Recommended Approach for Determining Pollutants of Concern

The DGWG recommends that the SSWG consider developing a list of pollutants of concern for the Post-Construction Program based on the following principles.

1. Pollutants identified by EPA as being commonly found in urban runoff (Table 1) that are also known to be present in Las Vegas Valley stormwater based on local monitoring data (Table 3) should be selected as pollutants of concern.
2. Pollutants on current and recent 303(d) Lists for Las Vegas Valley (Table 3) that can be traced to urban sources should be selected as pollutants of concern.

Table 4. Recommended Pollutants of Concern

Pollutant Category	Specific Pollutants of Concern	Typical Urban Sources in Las Vegas Valley
Nutrients	Nitrate Total Phosphorus Orthophosphate	Residential development Landscaped portions of commercial and industrial sites Parks and golf courses Streets and parking lots
Pathogens	Bacteria	Residential development Restaurants
Hydrocarbons	Oil and Grease	All
Organic Compounds	Pesticides Herbicides	Residential areas Landscaped portions of commercial and industrial sites Parks and golf courses
Sediment	TSS Sediment	Residential development Hillside development Streets and highways
Metals	Copper Lead Zinc Selenium	For copper, lead and zinc: Automotive repair shops Streets and parking lots For selenium: Urban irrigation return flows via shallow aquifer in areas with marine shales
Litter/Floatables	Trash and Debris	All
Chlorides	TDS	Urban irrigation return flows via shallow aquifer in areas with marine shales
Other	pH Surfactants	For pH: Urban irrigation return flows via shallow aquifer in areas with alkaline soils For Surfactants: Residential development Commercial/Industrial development involving vehicle washing Mobile cleaning operations

An aerial photograph showing a desert landscape. In the foreground, there is a residential development with several houses. A winding river or canal flows through the middle ground, curving around a golf course with green fairways and sand traps. The background shows more of the desert terrain with some construction or land clearing visible.

Hydromodification

Defined generally as a change to the hydrologic regime caused by urbanization of the watershed. The hydrologic regime includes storm runoff and dry weather flows, and can be measured by flow rates, flow volumes and runoff timing

Existing BMP or Other Activity	In Current SWMP ¹	In Annual Report ²	How it Works
Source Control Measures			
Street Sweeping Program	X	X	Removes pollutants from street surfaces before they are introduced to the MS4.
Storm Drain System Maintenance Program	X	X	Removes pollutants from drain inlets and storm drains before they are transported to receiving waters
Conservation (Drought) Ordinance		X	Watering restrictions and turf limitations reduce urban dry weather flows and associated transport of landscaping pollutants
Commercial/Industrial Site Housekeeping			Practices prevent contact of rain water with potentially contaminated surfaces and materials and/or control site runoff
Household Hazardous Waste Collection	X	X	Removes and properly disposes of hazardous materials prior to their introduction to trash collection areas and landfills
Ordinances Prohibiting Non-Stormwater Discharges and Littering	X	X	Provides each entity with legal authority to prohibit discharge of non-stormwater (except as expressly permitted) to the MS4, including litter
Desert Dumping Controls		X	Reduces incidents of dumping of potentially hazardous materials in rural areas
Grease Interceptor Inspections			Prevents overflows from sanitary system to stormwater system in restaurants and certain industrial facilities
Dust Control Measures			Reduces airborne transport and eventual deposition of pollutants. Requires stabilization of dirt roads, reducing erosion.
Public Education and Outreach			
Public Education – General Stormwater Awareness	X	X	Attempts to modify potentially harmful behaviors by disseminating information and products; targeted activities and pollutants in the past have included pet waste, illegal dumping, household hazardous waste management, over-watering
Storm Drain Marking Project	X	X	Provides continual reminder of personal best management practices; currently in retrofit phase with considerations to expand to a regional planning level
Developer Education – Green Building and LID Practices			Other organizations are promoting sustainable and LID building practices, which can reduce stormwater impacts based on site design principles
Regional Flood Control Projects			
Regional Detention Basins	X	X	Regional detention basins capture runoff from developed areas, allowing sediment and associated pollutants to drop out
Regional Channel Lining		X	Concrete lining and other channel stabilization measures by CCRFCD reduce erosion and associated sediment transport to downstream receiving waters
Las Vegas Wash Stabilization Structures		X	Wash stabilization measures (grade control structures, bank stabilization) by SNWA and LVWCC reduce erosion and encourage deposition of upstream sediment prior to reaching Las Vegas Bay

Existing BMP or Other Activity	In Current SWMP ¹	In Annual Report ²	How it Works
			and Lake Mead
Site Design Principles			
Low Impact Development			LID design reduces rate and volume of stormwater runoff from frequent storm events. LID design practices are being implemented in some new developments.
Open Space and Landscaping Objectives			Entities have open space, landscaping and recreation requirements, but they are not necessarily tied to stormwater program goals. Setting aside land for open space will prevent impacts of development from occurring on that land.
Habitat Conservation Planning (also part of Permitting measure)			Habitat conservation areas (e.g., for desert tortoise) provide open space that could be used for stormwater management. Setting aside land for habitat will prevent impacts of development from occurring on that land.
Floodplain Ordinances			Regulations prohibit development in active channel areas and constrain development in 100-year floodplain areas, both of which are high-impact areas for water quality
Hillside Development Ordinances			Specifies design guidelines for development on steep slopes that minimize erosion
Preserve Natural Washes			Preservation of natural washes in master planned areas and recreation areas allows for natural runoff attenuation and infiltration in unlined channels
Structural BMPs			
Sports complexes incorporated into detention basins			Turf areas and landscaping provide filtering of sediments and trash. Potential adverse effect of fertilizers, pesticides and herbicides,
Cooperative Programs			
Southern Nevada Water Authority		X	Water conservation, drought management, water smart landscaping, Wash management, promoting commercial car washing, water quality monitoring, public education and other programs all have secondary benefits to stormwater quality program
Las Vegas Valley Watershed Advisory Committee			New organization taking a watershed approach to water quality planning
Sustainability and Green Building Initiatives			Initiatives adopted by local entities include minor components for onsite stormwater management that can reduce water quality effects
Environmental Permitting			Complying with permitting requirements of NDEP, Corps of Engineers, U.S. Fish and Wildlife, etc. often have benefits to stormwater quality
Selenium Management Program			Program under development by Clean Water Coalition to reduce selenium in Lower Las Vegas Wash and tributaries to meet water quality standards
SCOP Project			Project to reduce wastewater effluent flow in Lower Las Vegas Wash; will reduce dry weather pollutant loads to Lake Mead and erosion effects

WHAT'S LEFT?

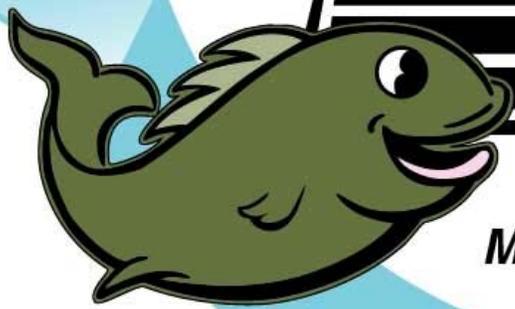
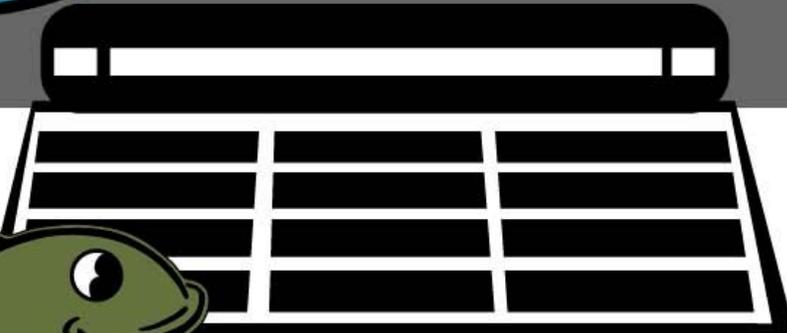
- Identify gaps in post development requirements
- Develop implementation plan
 - SSWG Meets October 14, 2008
 - Finish issue review & discussion
 - Begin to formulate draft plan and schedule
 - Begin draft letter to NDEP
 - November 17, 2008
 - Continue plan and schedule formulation
 - Continue draft letter to NDEP
 - December 9, 2008
 - Finalize plan and schedule
 - Finalize and deliver letter to NDEP
- Report to NDEP no later than December 31, 2008
- Implement plan according to schedule



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